

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of ~~optie~~optical images, the method comprising:

measuring a thickness ~~data~~ of the insulating layer;

collecting ~~standard data for an optie~~optical image of the insulating layer corresponding to a location of the measured thickness data, and transforming the optical image into optical image analog data or optical image digital data;

making ~~creating~~ a library by matching the measured thickness data and the optical image data collected on a the same location on the substrate; and

detecting ~~identifying a defect~~ defects in the insulating layer ~~with~~ based on the library.

2. (Previously Presented) The method as defined by claim 1, wherein the thickness data is data for a particular region or the whole of the wafer.

3. (Currently Amended) The method as defined by claim 1, wherein the standard data for the ~~optie~~optical image is data for a particular region or the whole of the wafer.

4. (Currently Amended) The method as defined by claim 1, wherein the optical image is stored in analog or digital image.

5. (Currently Amended) The method as defined by claim 1, wherein ~~making a~~ creating the library is ~~includes making a library~~ such that each optical image for the region represented by each thickness data is determined and a continuous image library for each thickness is constructed.

6. (Currently Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of ~~optie-optical~~ images, the method comprising:

measuring a thickness of the insulating layer at a plurality of locations on the substrate;

collecting an optical image of the insulating layer for each of said plurality of locations on the substrate, and storing the optical image transformed into analog data or digital data;

correlating the ~~optie-optical~~ image to the measured thickness of the insulating layer for each of said plurality of locations;

creating a library by matching the ~~optie-optical~~ image to the thickness of the insulating layer for each of said plurality of locations; and

~~detecting identifying a defects~~ in the insulating layer ~~with~~ based on the library.

7. (Currently Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of ~~optie-optical~~ images, the method comprising:

measuring a thickness of the insulating layer at a plurality of locations on the substrate;

~~obtaining~~ collecting an optical image of the insulating layer at each of said plurality of locations on the substrate;

correlating an optical image of the insulating layer at each of said plurality of locations on the substrate, and storing the optical image transformed into analog data or digital data;

correlating the image to the measured thickness of the insulating layer for each of said plurality of locations,

creating a library by matching the image to the thickness of the insulating layer for each of said plurality of locations; and

using the library to identify ~~detect a defect~~ defects in the insulating layer at the plurality of locations.